Course: **Honors Calculus**
Text: **Calculus of a Single Variable**
Replacement Cost: $65

This course fulfills the following Shrewsbury High School student expectations:

- *Fulfill individual academic potential.*
- *Develop critical and creative thinking skills to solve real world problems.*
- *Develop mathematical, scientific, and economic literacy.*
- *Develop competency in the use of information and technology.*
- *Formulate and express opinions supported by facts and data in effective presentations.*
- *Demonstrate effective reading, speaking, writing, and listening skills.*
- *Participate in collaborative and cooperative learning.*
- *Demonstrate a respect for individual abilities.*
- *Demonstrate self-discipline and personal responsibility for learning.*

Course Description:
A firm foundation in calculus is necessary for pursuing careers in science, mathematics, business, and some social sciences. Honors Calculus will provide the building materials necessary to continue the study of calculus in college. This course will study the following units:

I. Functions, graphs, and limits
   a. Analysis of graphs
   b. Limits of functions
   c. Asymptotic and unbounded behavior
   d. Continuity as a property of functions
II. Derivatives
   a. Concept of the derivative
   b. Derivative at a point
   c. Derivative as a function
   d. Second derivatives
   e. Applications of derivatives
   f. Computation of derivatives
III. Integrals
   a. Interpretations and properties of definite integrals
   b. Applications of integrals
   c. Fundamental Theorem of Calculus
   d. Techniques of anti-differentiation
   e. Applications of anti-differentiation
   f. Numerical approximations to definite integrals

Materials:

- ✓ Math Notebook
- ✓ *Covered* Textbook
- ✓ We ***strongly recommend*** the purchase of a TI-83 Graphing Calculator, as it is an integral part of this course. Some type of scientific calculator is **required**.
- ✓ Pencils and Erasers, because we all make mistakes.
- ✓ Student Planner

Course Expectations: Homework will be assigned on a regular basis and will be a component of the marking period grade. Students will also be assessed on their tests, quizzes, projects, notebooks, and individual/collaborative class-work. As communicating mathematical thinking will be stressed throughout the course, assignments involving some type of written analysis/explanation will be collected and graded. Students are expected to be inside the classroom on time, to be prepared, and to take price in their work. Students are also expected to be respectful of their teacher, peers, and classroom materials.

Semester Grade: Each quarter grade counts 40% and the semester exam counts 20% of the semester grade.

Extra Help: Available after school Monday – Thursday in the Math Lab (B202) or with the course teacher.